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A rapid assessment of hunting and bushmeat trade along the roadside between five Angolan major towns

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Abstract

Hunting and related bushmeat trade are activities which negatively impact wildlife worldwide, with serious implications for biodiversity conservation. Angola's fauna was severely decimated during the long-lasting civil war following the country's independence. During a round trip from Lubango (Huíla province), passing through the provinces of Benguela, Cuanza sul, Luanda, Bengo and finally to Uíge, we documented a variety of bushmeat trade, mainly along the roadside. This included snakes, rodents, duikers, antelopes, bush pigs, small carnivores and bird species. Despite being considered a subsistence activity for inhabitants in rural areas, it is concerning due to the increasing number of people becoming dependent on bushmeat trade for income generation and demand for bushmeat in the main cities. There is an urgent need to assess the impact of this activity on wildlife populations, in order to create alternative sources of income in rural areas and more effective policies focused on effective conservation of the rich biodiversity of Angola.

Keywords

Hunting, wildlife, rural areas, conservation

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Introduction

Hunting of wild animals has been practised by humans for millions of years ago (Gaudzinski 2004). Consumption of bushmeat, besides being an important source of protein for households, has implications for food security and income generation for millions of people in tropical areas (Nasi et al. 2008). Bushmeat hunting and consumption have substantially increased in rural and urban areas, driven by rapid growth of the human population, easy and safe access to forests and for-profit bushmeat trade, taste preference and lack of alternative meat sources (Davies 2002; Nasi et al. 2008; Chaves et al. 2019). However, the extraction of wildlife for subsistence and commercialisation has become a major biodiversity threat in recent decades, with over-exploitation reported to be the second most important driver of change and biodiversity loss globally (IPBES 2019).

This problem is particularly relevant for Angola, where most of the wildlife was decimated during decades of post-independence civil war, as well as in conservation areas (Huntley 2017; Daskin and Pringle 2018). The country is, however, considered one of the richest and most biodiverse in Africa, accounting for an estimated 6850 native and 226 non-native plant species (Rejmánek et al. 2016; Goyder and Gonçalves 2019). Birds account for 940 species with many endemic species (Mills 2018), amphibians and reptiles accounting for 117 and 278 species, respectively (Marques et al. 2018). These numbers are expected to increase, as species new to science are still being discovered or rediscovered (Ceríaco et al. 2018; Marques et al. 2019; Vaz Pinto et al. 2019). Freshwater fishes account for 358 species, of which 22% are endemic (Skelton 2019) and 275 species of mammals are historically recorded, with new additions from recent surveys of the upper Okavango (Cubango) catchment (Taylor et al. 2018).

The long-lasting civil war contributed to an acceleration in the loss of wildlife in Angola as mentioned above, with illegal poaching leading to near extinction of many large-bodied species, including the charismatic and critically endangered Giant sable antelope (*Hippotragus niger variani*) (Vaz Pinto et al. 2016). Still, after more than 15 years of peace and political stability in the country, hunting and the bushmeat trade are still threatening wildlife in Angola. Protection of wildlife in Angola was regulated for many years by outdated colonial laws (e.g. Regulamento de Caça, approved by the Diploma Legislativo No. 2873, 11 de Dezembro de 1957). This document covers, in general, all aspects related to conservation and utilisation of wild animals (Huntley 1974). From there, the legislation for wildlife protection has been updated sequentially over time; for instance, all the species listed in Appendix I of CITES, to which Angola is a recent signatory, are prohibited from hunting (Decreto Executivo No. 469/15, 13 de Julho de 2015). Joint legislation between the Ministries of Finance and Agriculture fixed fines for wild animals whose hunting is prohibited in Angola and those whose hunting is permitted only during each hunting season (Decreto Executivo Conjunto No. 201/16, 26 de Abril de 2016). Other recently approved legislation establishes guidelines to ensure the conservation and sustainable use of forests and wildlife and provides a general basis for all activities related to them (Lei de Bases de Florestas e Fauna Selvagem No. 6/17, 24 de Janeiro de 2017).

Despite this legal context and governmental efforts, presently, wild animals are hunted throughout the year and the obtained bushmeat is commonly observed being sold along the roadside in the absence of an efficient law enforcement mechanism by the forestry authorities, thereby challenging the protection and conservation of wildlife in Angola. Thus, with this study, which resulted from a recent assessment along the main road between five major Angolan towns, we aimed to contribute with data on hunting and bushmeat trade.

Material and methods

The assessment of bushmeat trade was conducted between 19th–23rd September 2018. We travelled approximately 1237 km south-north, starting from Lubango, the capital city of Huíla province to Luanda and finally to Uíge province (Fig. 1). During the trip, we documented and recorded data on hunting and bushmeat trade along the roadside. The species being sold were locally identified, counted, photographed and the localities were georeferenced. The identification of species was later confirmed, based on local expertise and on the available literature (Chris 2006; MINAMB 2009a; Kingdon and Hoffman 2013).

Results and discussion

During the rapid assessment, we documented a variety bushmeat in fresh state, smoked, non-quantified dried meat and live animals, being sold mostly to urban dwellers travelling between the main cities (Table 1). Despite the recent Ebola outbreak in the neighbouring country of Democratic Republic of Congo (DRC), individual animals appear to be obtained directly from hunters and slaughtered without any sanitary measure or observing a quarantine period. This observation is particularly concerning as Uíge province shares an extensive terrestrial border with DRC and the consumption of wildlife in Africa is frequently associated with increased risk of acquiring zoonotic diseases (Ordaz-Nemeth et al. 2017).

Most of our records were documented along the main road between the Angolan provinces of Bengo and Uíge; these included many species of duikers (*Sylvicapra grimmia*, *Cephalopus monticola*), monkeys (*Cercopithecus mitis*, *Chlorocebus aethiops*, *Miopithecus talapoin*), snakes (e.g. *Psammophis mossambicus*, *Python natalensis*, *P. sebae*) and a globally protected species of pangolin (*Manis tricuspis*) (Fig. 2). Small antelopes, such as blue and yellow backed duikers, still represent the most hunted species and are sold along the Angolan roads (Bersacola et al. 2014).

We did not find any evidence of cross-border trade with neighbouring countries, as our survey was concentrated on the evaluation of activity along the road linking the provinces covered by this study and restricted to only a few days of driving. However, there may be trade of wildlife meat in the informal markets of the principal border

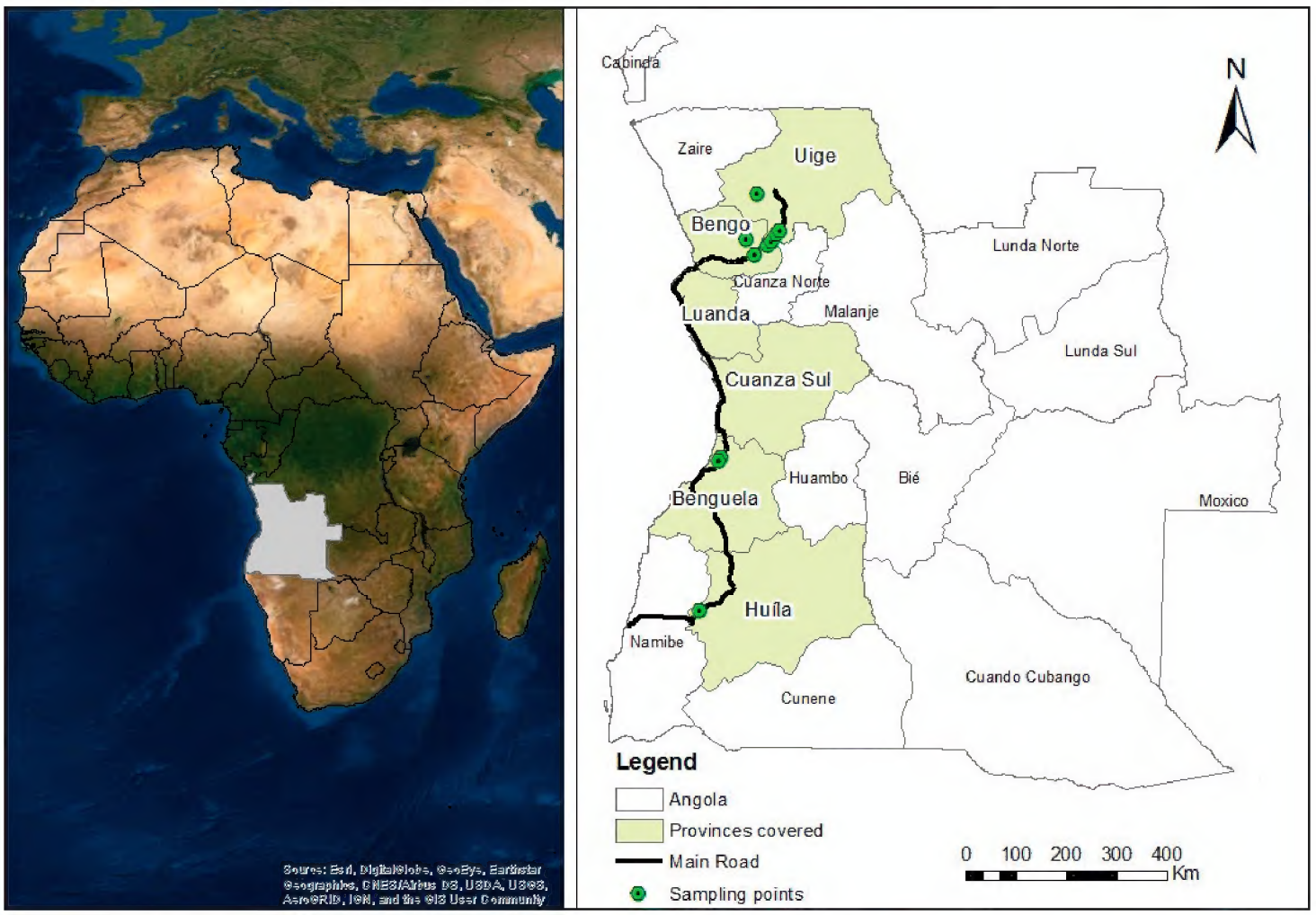

Figure 1. Map of Africa showing the location of Angola (left) and the provinces covered by the study along the main road from Lubango (Huíla province) to Uíge (right).

posts, due to the intense and unregulated commercial activities between the two countries. During this study, we witnessed a Chinese customer looking for pangolins in one of the villages; pangolin scales, when soaked, are trusted for having medicinal properties for a large variety of human illnesses mostly in Asia, but also increasing in Africa (Soewu and Adekanola 2011; Katuwal et al. 2013). It is currently estimated there are 0.4–0.7 million pangolins hunted annually, representing an increase of around 150% only for medicinal purposes over the past four decades (Ingram et al. 2018).

We also observed the sale of wading birds and parrots near Kifangondo, the main point of entrance to the capital city of Angola (Luanda) for people coming from the northern parts of the country. The number of documented species decreased from Luanda southwards. Few selling points of dried and fresh meat of rocky dassies (*Procavia capensis*), snakes (e.g. *Python natalensis*), the common (grey) and blue duikers and live species of guineafowls (*Guttera pucherani*) were recorded between Cuanza sul and Benguela. We believe that bird species, including parrots, are mostly sold as pets. In the city of Luanda, bird species, such as parrots, are commonly being sold in pet shops, fairs, along the streets and entry points to the main cities by young boys (*pers. obs.*). Bushmeat and trade of wildlife are becoming widespread commercial activities also in Angola, with serious implications on wild animal populations (Swensson 2005).

The sale of wildlife decreased substantially with only occasional observations between Benguela and Lubango (in Huíla province). This observation however cannot be

Figure 2. Wild animals and smoked bushmeat on sale along the roadside of the Sequele village, between Bengo and Uíge provinces **A** Blue duikers, Talapoin and Vervet (green) monkey in the cage on ground **B** Northern Rock Python and **C** Tree pangolin.

seen as an indication of biodiversity decline in these areas. Historically, large mammals from this vast territory of south-west Angola were deliberately eliminated to make way for cattle ranching, supported by the Declaration of Free Hunting in Huíla District (Huntley 1974). Nevertheless, additional studies are required to assess any evidence pointing to the reduction of wildlife in this region, during the post-independence period of civil war. According to Lindsey et al. (2015), illegal hunting appears to spike during periods of political instability and poor governance, due to breakdown of law enforcement and increased dependence of people on natural resources for survival.

Although there is an effort from the Angolan authorities and progress has been made in terms of legislation, unfortunately, there is no clear definition which governmental department is responsible for the protection of wildlife and what their role is. In 2009, the Angolan Ministry of Environment produced a list of species whose hunting and trade are prohibited in Angola; this included five species from our recent sur-

Table 1. Observed species sold as fresh meat, smoked or live animals from the provinces of Benguela, Luanda, Bengo and Uíge and their conservation status, the (*) refers to *Python sebae* found smoked in pieces with about 12 eggs.

Group	English Name	Scientific Name	IUCN status	State of sale	Quantity	Locality
Rodents	Rocky Dassie	*Procavia capensis*	Least Concern	Dried	10	Culango, Benguela
	Rocky Dassie	*Procavia capensis*	Least Concern	Fresh	3	Culango, Benguela
Duikers	Common (Grey) Duiker	*Sylvicapra grimmia*	Least Concern	Fresh	7	Culango, Benguela
Birds	Crested Guineafowl	*Guttera pucherani*	Least Concern	Live	1	Culango, Benguela
Snakes	Southern (Rock) Python	*Python natalensis*	Not assessed by IUCN	Smoked	1	Keve River, Cuanza sul
Rodents	Rocky Dassie	*Procavia capensis*	Least Concern	Fresh	1	Culango, Benguela
Duikers	Blue duiker	*Cephalophus monticola*	Least Concern	Fresh	5	Culango, Benguela
Snakes	Olive Whip Snake	*Psammophis mossambicus*	Not assessed by IUCN	Fresh	1	Úkua; Bengo
Duikers	Common (Grey) Duiker	*Sylvicapra grimmia*	Least Concern	Fresh	2	Sisala village, Vista Alegre, Uíge
Snakes	Northern (Rock) Python	*Python sebae*	Not assessed by IUCN	Fresh	1	Sisala village, Vista Alegre, Uíge
	Northern (Rock) Python	*Python sebae*	Not assessed by IUCN	Smoked	1	Vista Alegre, Uíge
Monkeys	Vervet (Green) Monkey	*Chlorocebus aethiops*	Least Concern	Live	1	Vista Alegre, Uíge
Rodents	Greater Cane Rate	*Thryonomys swinderianus*	Least Concern	Fresh	1	Vista Alegre, Uíge
Horned antelopes	Bushbuck	*Tragelaphus scriptus*	Least Concern	Fresh	1	Vista Alegre, Uíge
Snakes	Northern (Rock) Python	*Python sebae**	Not assessed by IUCN	Smoked	1	Vista Alegre, Uíge
Pigs	Bushpig	*Potamochoerus larvatus*	Least Concern	Fresh	1	Vista Alegre, Uíge
Cusimanses	Ansorge's Cusimanse	*Crossarchus ansorgei*	Least Concern	Fresh	1	Kawanga village, Uíge
Horned antelopes	Bushbuck	*Tragelaphus scriptus*	Least Concern	Fresh	1	Piri, Bengo
Monkeys	Blue Monkey	*Cercopithecus mitis*	Least Concern	Fresh	4	Piri, Bengo
Duikers	Blue duiker	*Cephalophus monticola*	Least Concern	Fresh	4	Piri, Bengo
Monkeys	Blue Monkey	*Cercopithecus mitis*	Least Concern	Fresh	1	Piri, Bengo
Pangolins	Tree Pangolin	*Manis tricuspis*	Vulnerable	Fresh	1	Sequele village, Bengo
Monkeys	Blue Monkey	*Cercopithecus mitis*	Least Concern	Fresh	1	Sequele village, Bengo
Rodents	Rocky Dassie	*Procavia capensis*	Least Concern	Fresh	1	Sequele village, Bengo
Duikers	Blue duiker	*Cephalophus monticola*	Least Concern	Fresh	4	Sequele village, Bengo
Monkeys	Vervet (Green) Monkey	*Chlorocebus aethiops*	Least Concern	Live	1	Sequele village, Bengo
Monkeys	Talapoin Monkey	*Miopithecus talapoin*	Least Concern	Live	1	Sequele village, Bengo
Civets	African civet	*Civettictis civetta*	Least Concern	Fresh	1	Sequele village, Bengo
Horned antelopes	Bushbuck	*Tragelaphus scriptus*	Least Concern	Fresh	1	Sequele village, Bengo
Monkeys	Blue Monkey	*Cercopithecus mitis*	Least Concern	Fresh	1	Sequele village, Bengo

vey, namely: *Tragelaphus scriptus*, *Sylvicapra grimmia*, *Cephalophus monticola*, *Civettictis civetta* and *Chlorocebus aetiops* (MINAMB 2009b). Another official document mentions amongst others, these species and all *Python* spp. (with exception of the Angola python (*Python anchietae*), wrongly identified as *Boa constrictor*), as wild animals whose hunting is permitted at each hunting season (which runs from 1st August – 31st December), and fixes the respective compensation fees due to the Angolan state (Decreto Executivo No. 201/16, 26 de Abril de 2016). Surprisingly, from the above mentioned species, only *C. civetta* is included in the recent published Red List of Angolan species with the status of vulnerable (MINAMB 2018). This situation emphasises the need for an up-to-date assessment of wildlife in Angola and to produce appropriate legislation with specific actions focused on the effective protection of vulnerable species and others species currently under pressure due to illegal hunting.

Conclusions

During this short round trip, driving from Lubango to Uíge, we documented a variety of wildlife and bushmeat trade along the roadside. The actual quantity of bushmeat sold may be larger than documented in this study and may be dependent on day of week, time and season. Quantitative data on exploitation of bushmeat in local communities of Angola are scarce and its impact on wildlife populations is not currently assessed. A number of species, documented in our study, are prohibited for hunting and sale in the country, for others whose hunting is allowed, their conservation status is not domestically assessed and is instead based on global assessments. Further studies are required to assess and better evaluate the situation of species; particularly the most frequently hunted species and, based on this, to establish their conservation status locally within Angola.

Despite the progress made in terms of legislation amongst different ministerial departments, there is no clear definition of tasks and responsibilities amongst them; this resulted, for instance, in the absence of an agreement in terms of prohibited species for hunting and trade and in the inefficiency of government authority, which has resulted in uncontrolled hunting and trade of wild animals. We believe that the establishment of a forestry or wildlife authority is crucial to reduce pressure on natural resources (incl. wildlife) and in creation of more specific legislation, aiming to effectively protect wildlife in Angola.

Along our way, we did not observe any action aiming to discourage this activity from the various police checkpoints we passed. Based on this observation, we recommend strengthening enforcement measures along the main roads to alleviate pressure on wildlife due to the demand for bushmeat and other forest goods in the cities and to increase education amongst police officials in rural areas of the damage caused by bushmeat trade. Additionally, we recommend stronger enforcement to prevent any transboundary trade of bushmeat and the associated risk of acquiring diseases related

to consumption of wild animals. It is also recommended that there is additional evaluation of bushmeat trade across the informal markets in the main country border posts and other larger markets of the principal cities such as Luanda, to better evaluate the dynamics of bushmeat trade across the region.

Illegal hunting and associated bushmeat trade constitute a concerning issue in terms of biodiversity conservation. Its impact must be studied and properly evaluated in order to study mechanisms to alleviate pressure on wildlife and demand of bushmeat for income generation in rural communities. This can be achieved by promoting breeding and consumption of domesticated meat in rural areas, mainly in northern parts of Angola to reduce overharvesting of wildlife and contribute to generation of income from other sources (e.g. selling of domestic animals and meat products).

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